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IGME 531 Project 1

What did I make?

For this project I combined the Lorenz Attractor assignment using Three.js and Web Audio API with Tonal. I also implemented a GUI system using dat.gui to give the user the ability to interact with the project.

What did I do?

- **Aesthetics:** The color of the scene background starts at black but can be changed by the user. The color of the spheres can be influenced by the user but is largely controlled by the music. The color range for the spheres doesn't include the full spectrum of color. I wanted the color to be based off of the current midi value and since the amount of midi values (128) is about half of the maximum color value (255), the full spectrum can't be included.
- **Algorithm:** The algorithm for the Lorenz Attractor is unchanged. The changeable values in the GUI used for the algorithm are used to influence the sound. The sounds will always center around the "midiCenter" that the user picks. However, by manipulating the "a" variable specifically, the user can change the range of sounds used. A small "a" value will result in less variation in the frequencies played while a larger "a" value will result in a larger range of frequencies. The "a", "b", and "c" values are also what affect the color of the spheres.
- **Audio:** For the audio, I wanted there to be continual sound that only changed the frequency. Sound is based off a modified normal distribution formula that used what "midiCenter" value the user has currently selected. The sounds range from very low to very high pitch. I also incorporated a DelayNode with my OscillatorNode.
- **User Interaction:** The user can use the WASD keys to move the camera around. The bulk of the user interaction will be with the GUI as the user can manipulate 6 different values. The user can manipulate the aesthetics, algorithm variables, music values, and the delay time.

What are my reasons?

I really wanted to give users as much control over the project as I could. Users are still bound by the algorithms I use for the Lorenz, aesthetics, and sound, but are able to manipulate the output of the algorithms. In order to tie everything together, I incorporated the variables of the Lorenz Attractor algorithm into the sound and aesthetic algorithms as well.